4 March 2002 Staff Workshop

Total Maximum Daily Loads for the San Joaquin River: Organophosphorus Pesticides & Salt and Boron

CVRWQCB
San Joaquin River TMDL Unit

Workshop Agenda

- Morning Session:
  Organophosphorus Pesticide TMDL
- Afternoon Session: Salt and Boron TMDL
  - Welcome and Introductions
  - Overview of Regional Board's TMDL Development Process and Timelines
  - Salt and Boron TMDL
    - Staff presentation
    - Questions and discussion

What Is a TMDL and Why Do One?

- TMDL = Total Maximum Daily Load
- TMDLs are required under section 303(d) of the Federal Clean Water Act
  - TMDLs must be developed for pollutants and waterbodies that have been identified on 303(d) list of impaired waterbodies

What Is a TMDL and Why Do One?

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What Is a TMDL?

- A total maximum daily load (TMDL) is the amount of a specific pollutant that a waterbody can receive and still maintain a water quality standard
- TMDLs allocate pollutant loads to point and nonpoint sources…

What Is a TMDL?

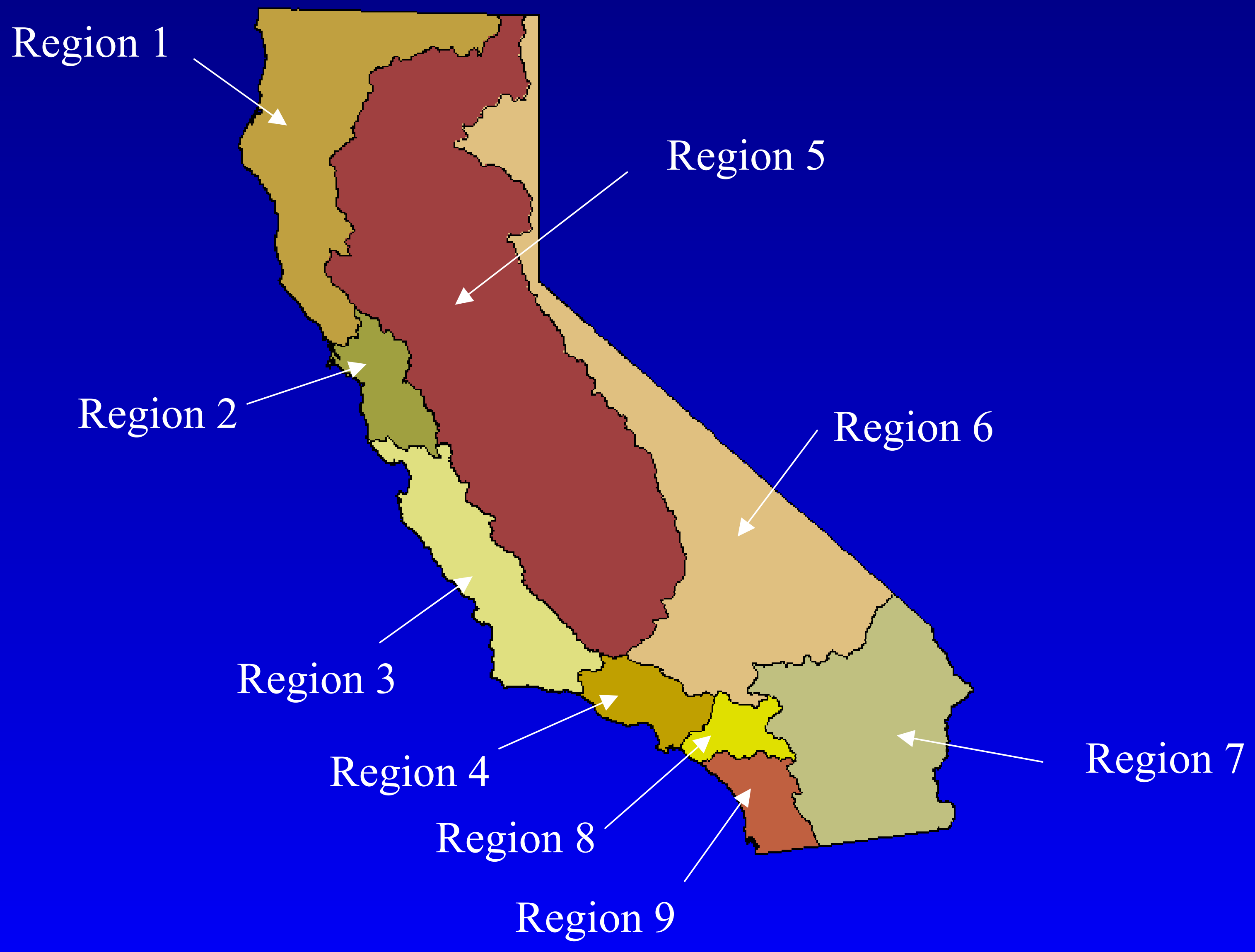
- TMDL = WLA + LA + MOS + background

WLA:	waste load allocation for point sources
LA:	load allocations for nonpoint sources
MOS:	margin of safety

Components of TMDLs

- TMDL Description (Problem Statement)
- Numeric Targets (will often be new water quality objectives)
- Source Analysis
- Allocations
- Linkage Analysis (relationship between sources, allocations, and targets)
- TMDL Report

- *Implementation Plan*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Region 5
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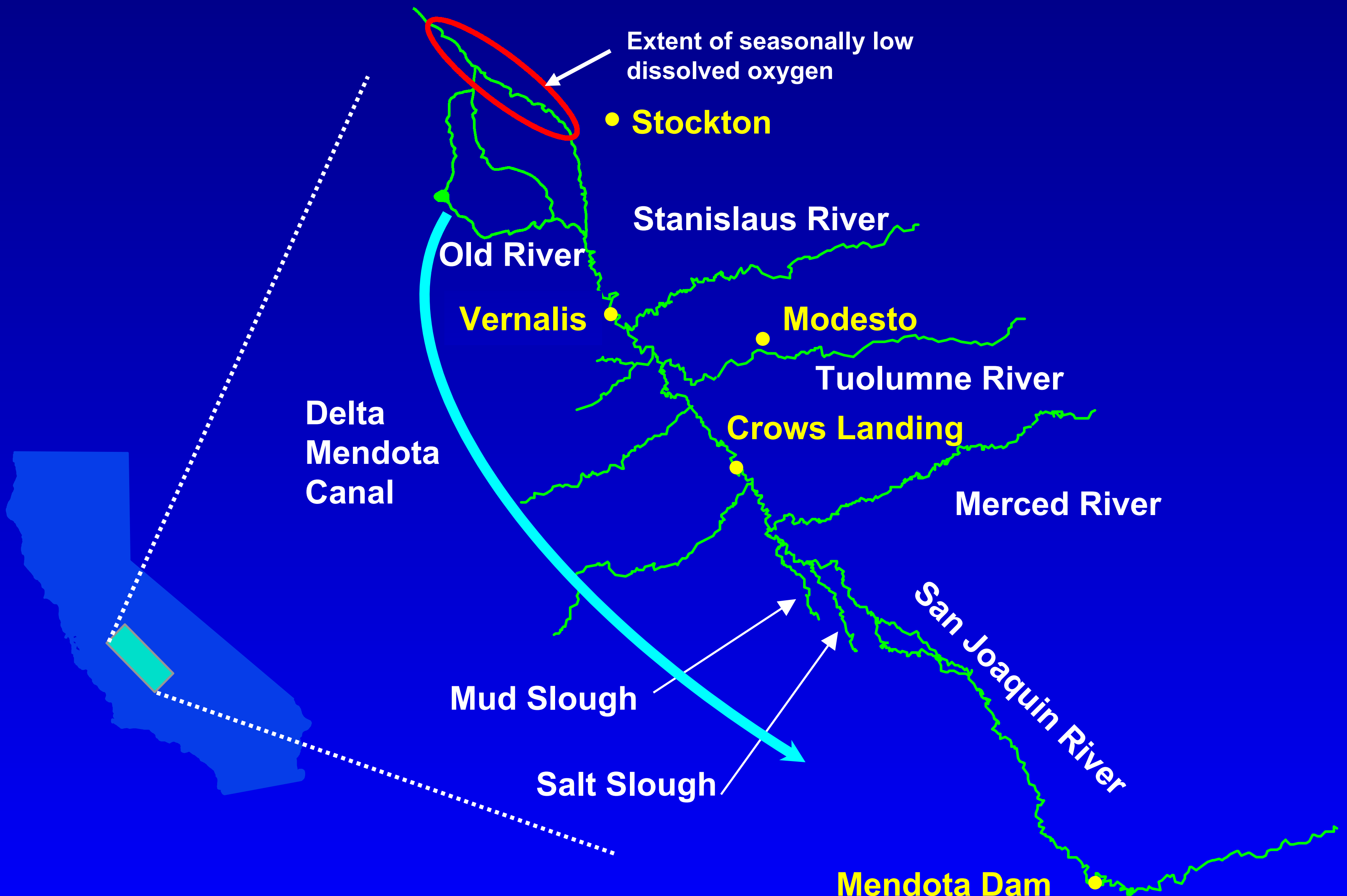
Region 5
San Joaquin River Basin

Lower San Joaquin River Basin



TMDL Timeline

Current Activities

Watershed	June 2001	June 2002	June 2003
San Joaquin River	Selenium Salt & boron	Diazinon & chlorpyrifos	
Delta			Dissolved oxygen Diazinon & chlorpyrifos Mercury
Sacramento River	Copper, zinc, & cadmium	Diazinon	
Clear Lake	Mercury		
Cache Creek		Mercury	

San Joaquin River Salt and Boron TMDL Progress Update

Les Grober

Eric Oppenheimer

San Joaquin River TMDL Unit

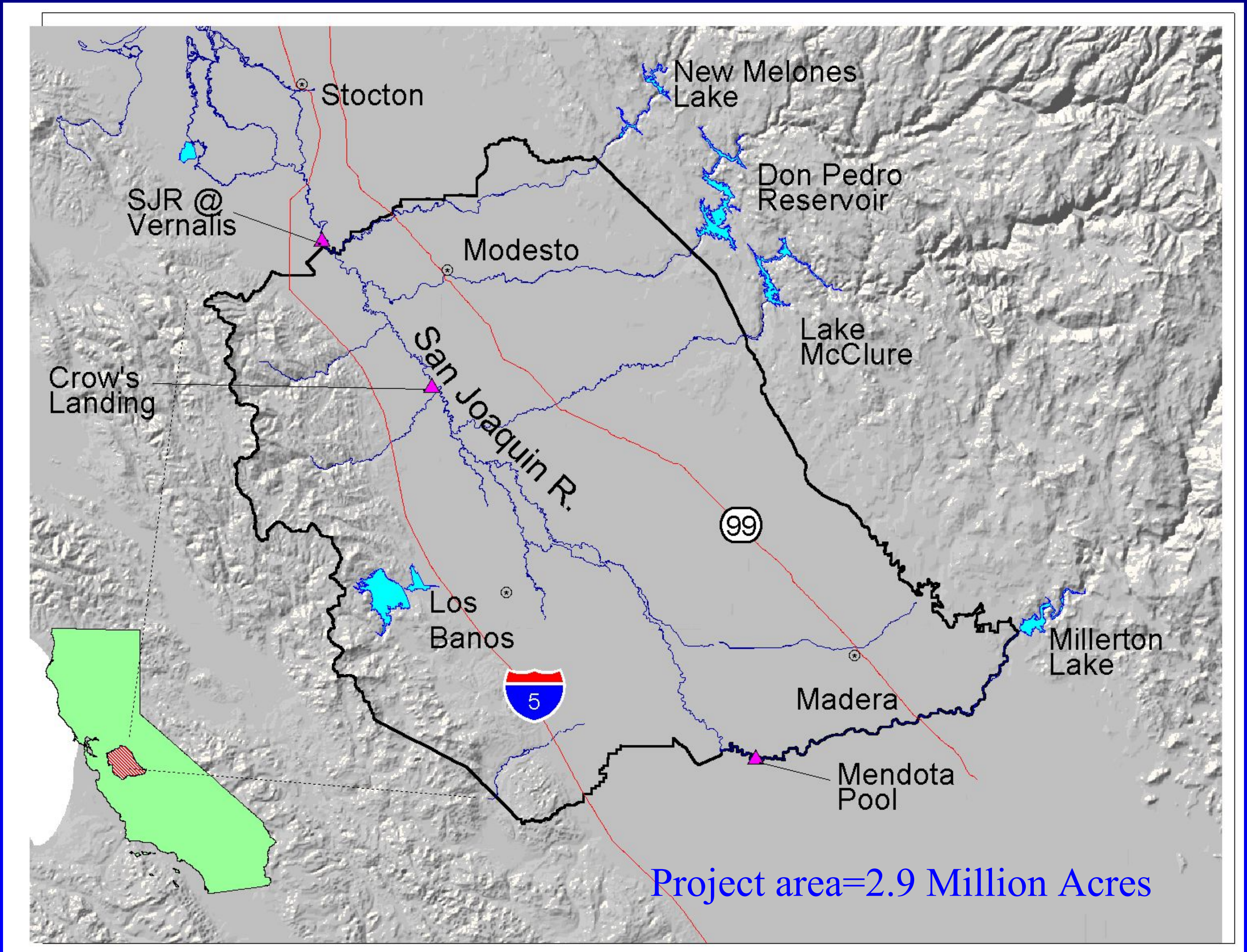
Topics to be Covered

- Background Information
- Source Analysis
- Loading Capacity and Allocations
- Next Steps

Background

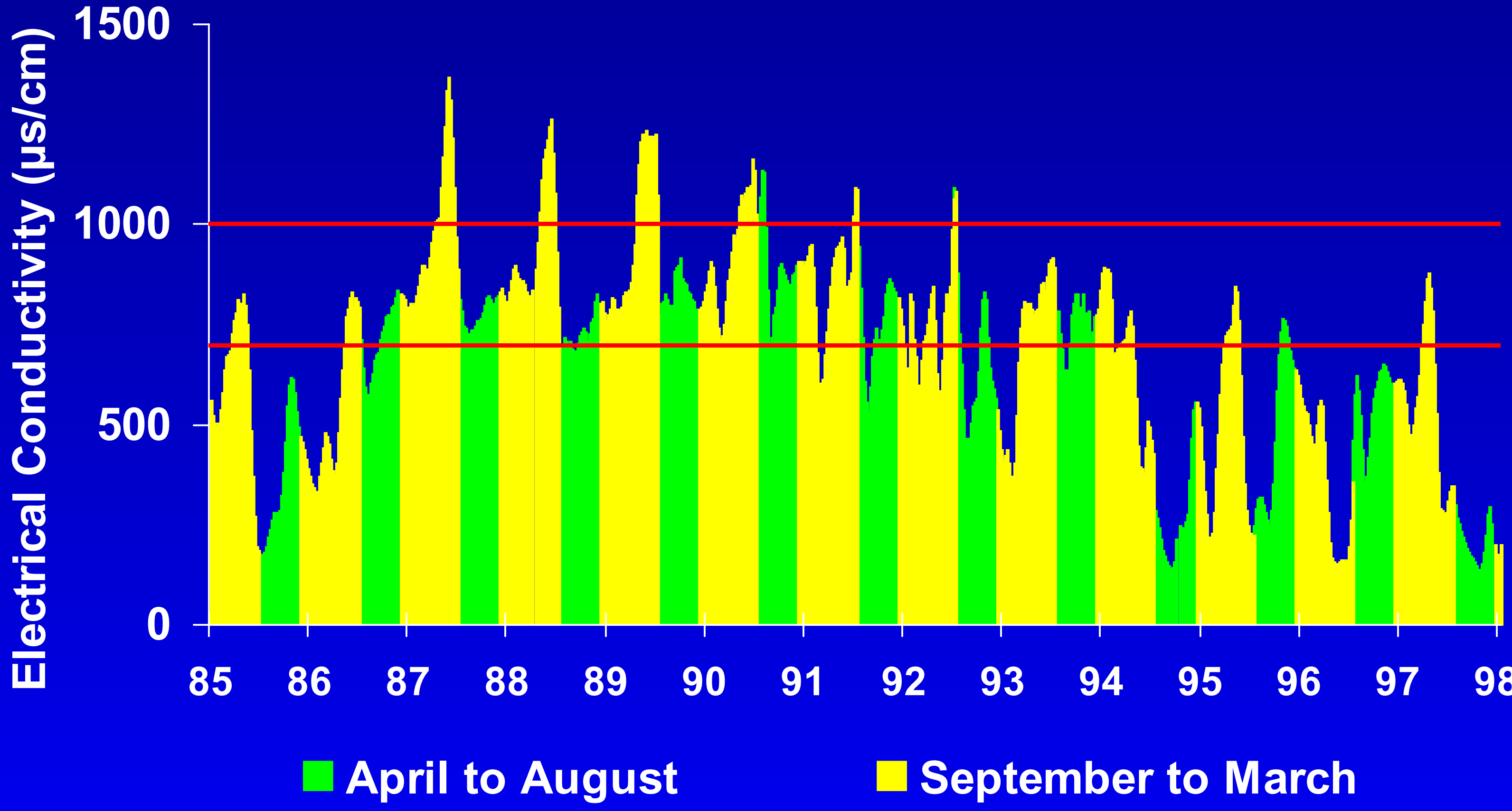
- Phased Approach:
  - TMDL limits calculated to meet only Vernalis water quality objectives
- TMDL Report completed
  - Sent to USEPA January 2002
  - Technical work product only
  - No legal standing until incorporated into Basin Plan

Project Area for Salinity and Boron TMDL



San Joaquin River near Vernalis

30 Day Running Average Electrical Conductivity



Salinity and Boron Numeric Targets at Vernalis

	Irrigation Season April to August	Non-Irrigation Season September to March
Salinity	700 µS/cm	1000 µS/cm
Boron	0.8 mg/L	1.0 mg/L

TMDL Source Analysis

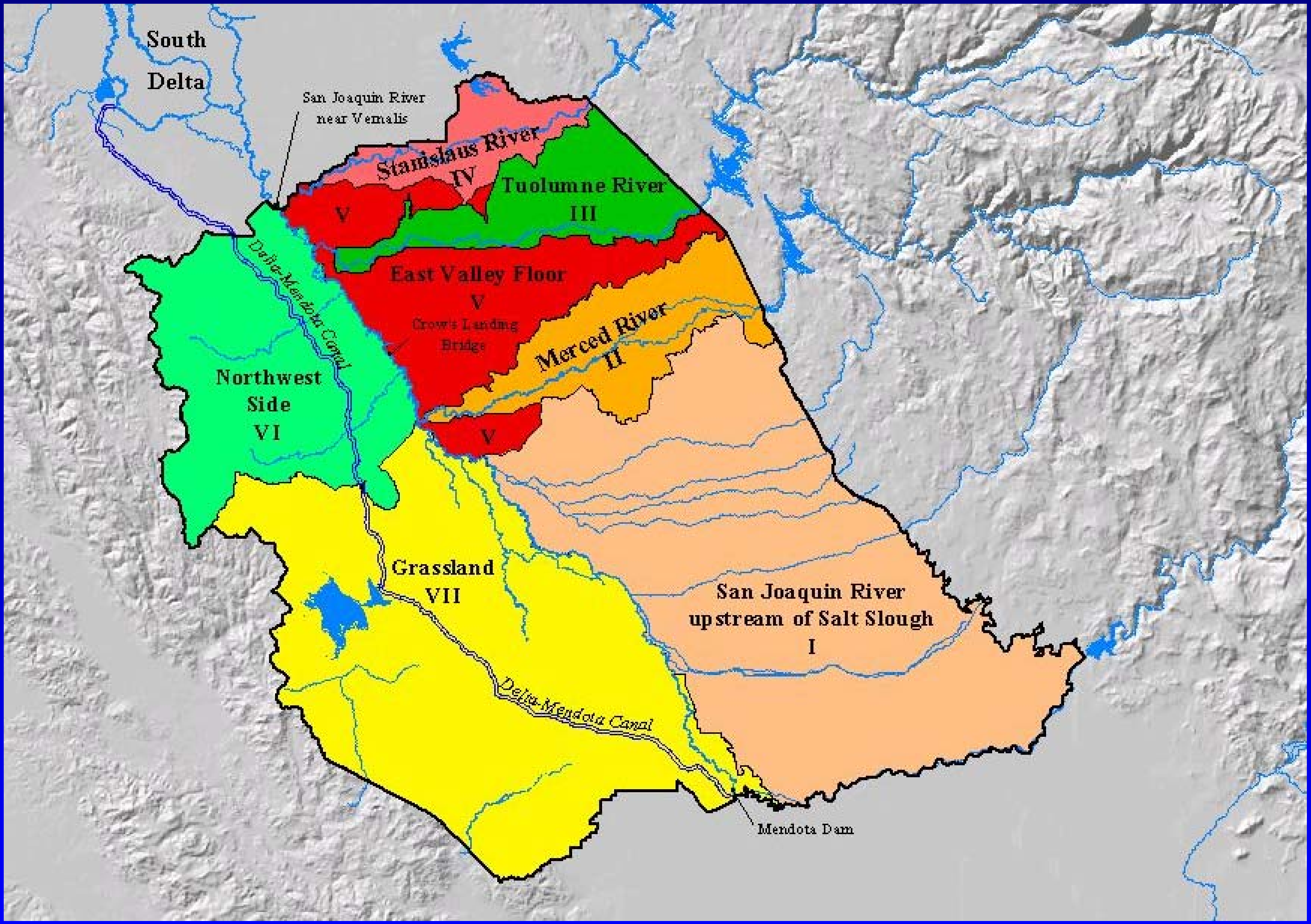
Objective:

- Determine the quantity and location of salt and boron loading in the watershed
- Ensure that all significant sources will be addressed so that load allocations result in attainment of Numeric Targets

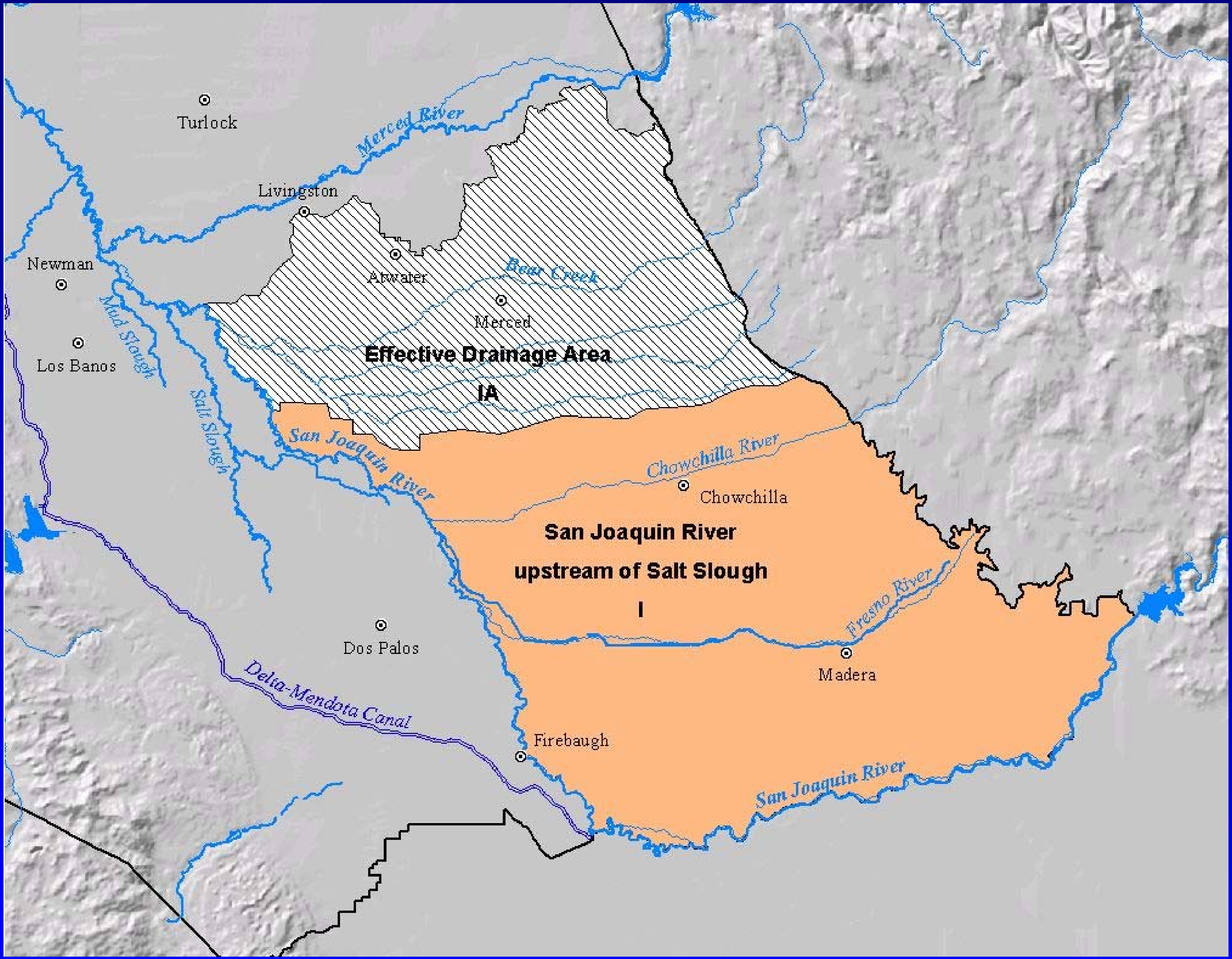
Approach:

- Divide the watershed into geographic sub-areas
- Use monitoring data and modeling to determine loading from sub-areas and source types.

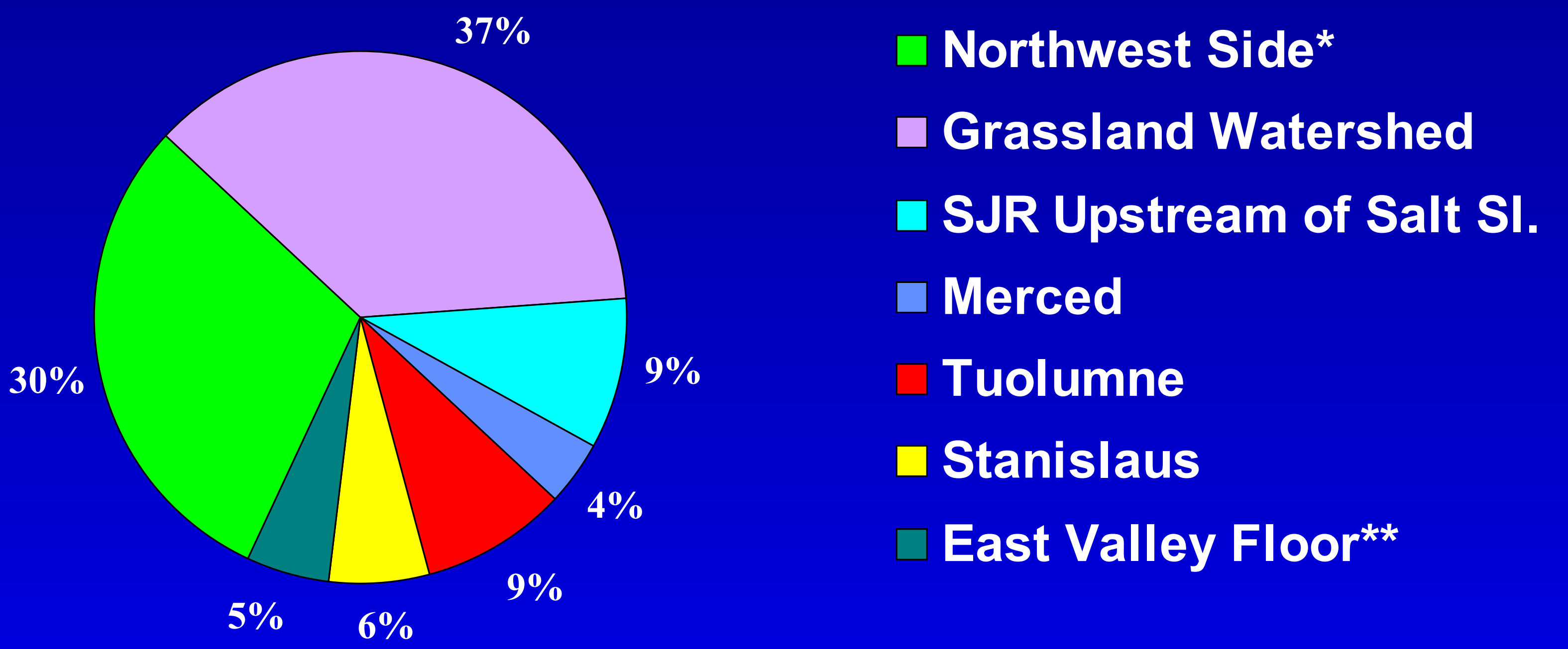
Lower San Joaquin River Basin Sub-areas



Modification to The LSJR above Salt Slough



Sources of Salt (by sub-area)

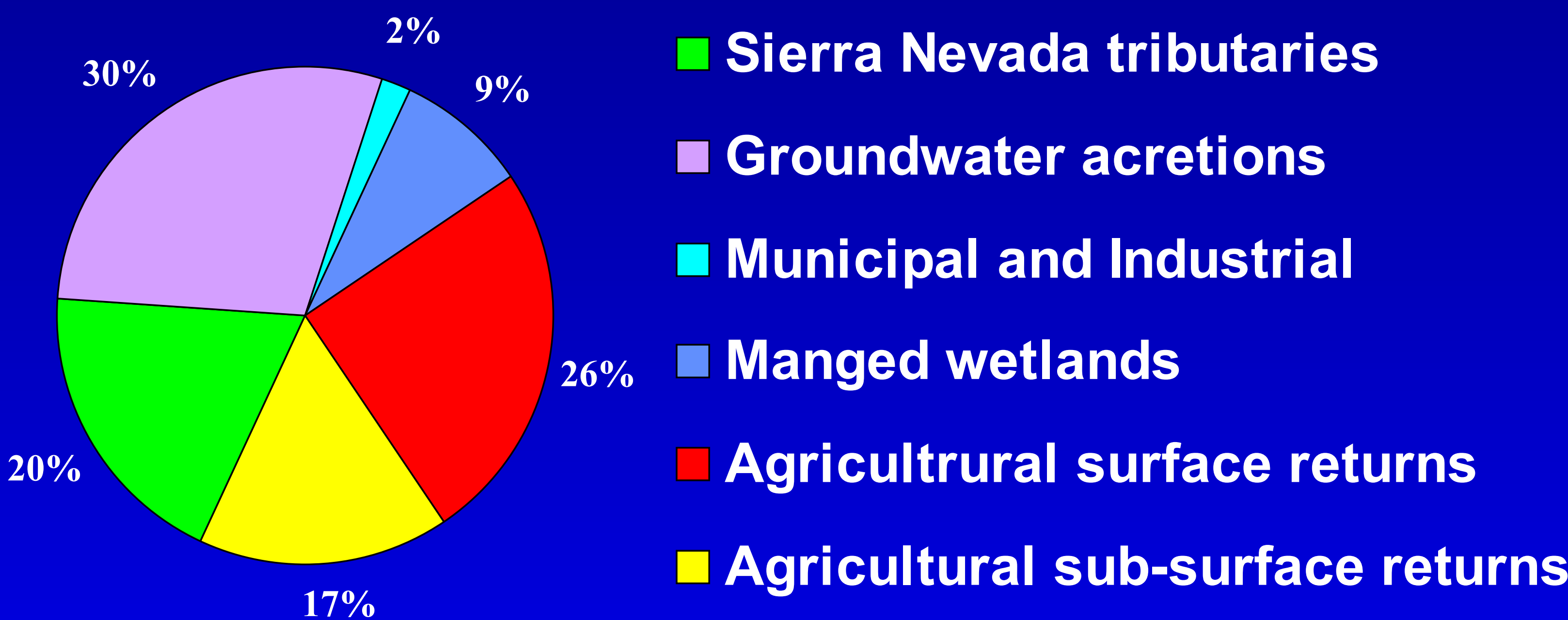


Mean Annual Salt Load to SJR for WY 1977 to 1997: 1.1 million tons

*Northwest Side estimated by difference :Vernalis minus sum of other sources

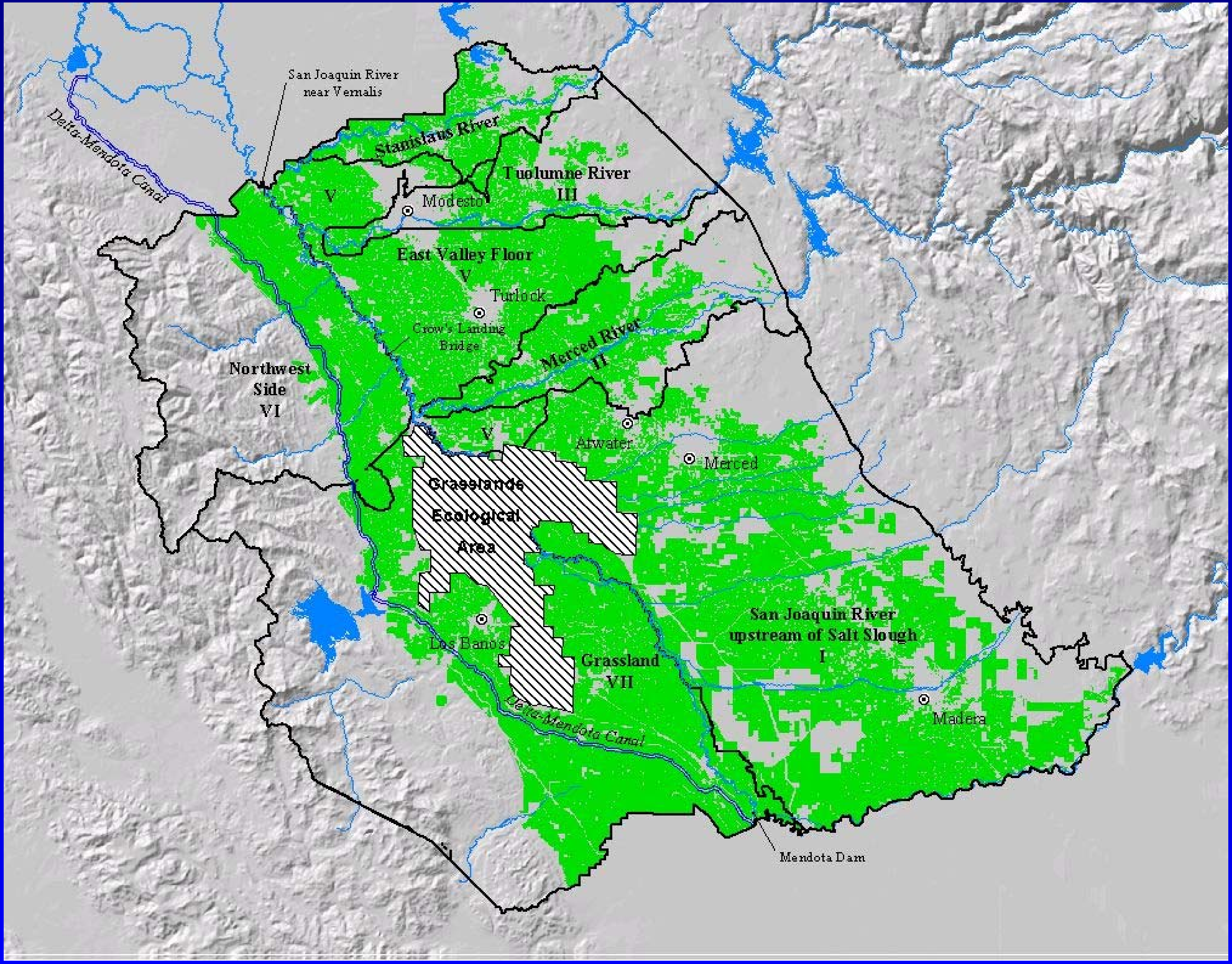
** East Valley Floor extrapolated from TID 5 data (1985-1996)

Sources of Salt (by source type)*



* Sum of the sources exceed 100 percent because different methods were used to calculated loads form various sources - not a mass balance

Land Use in the Lower San Joaquin River Basin



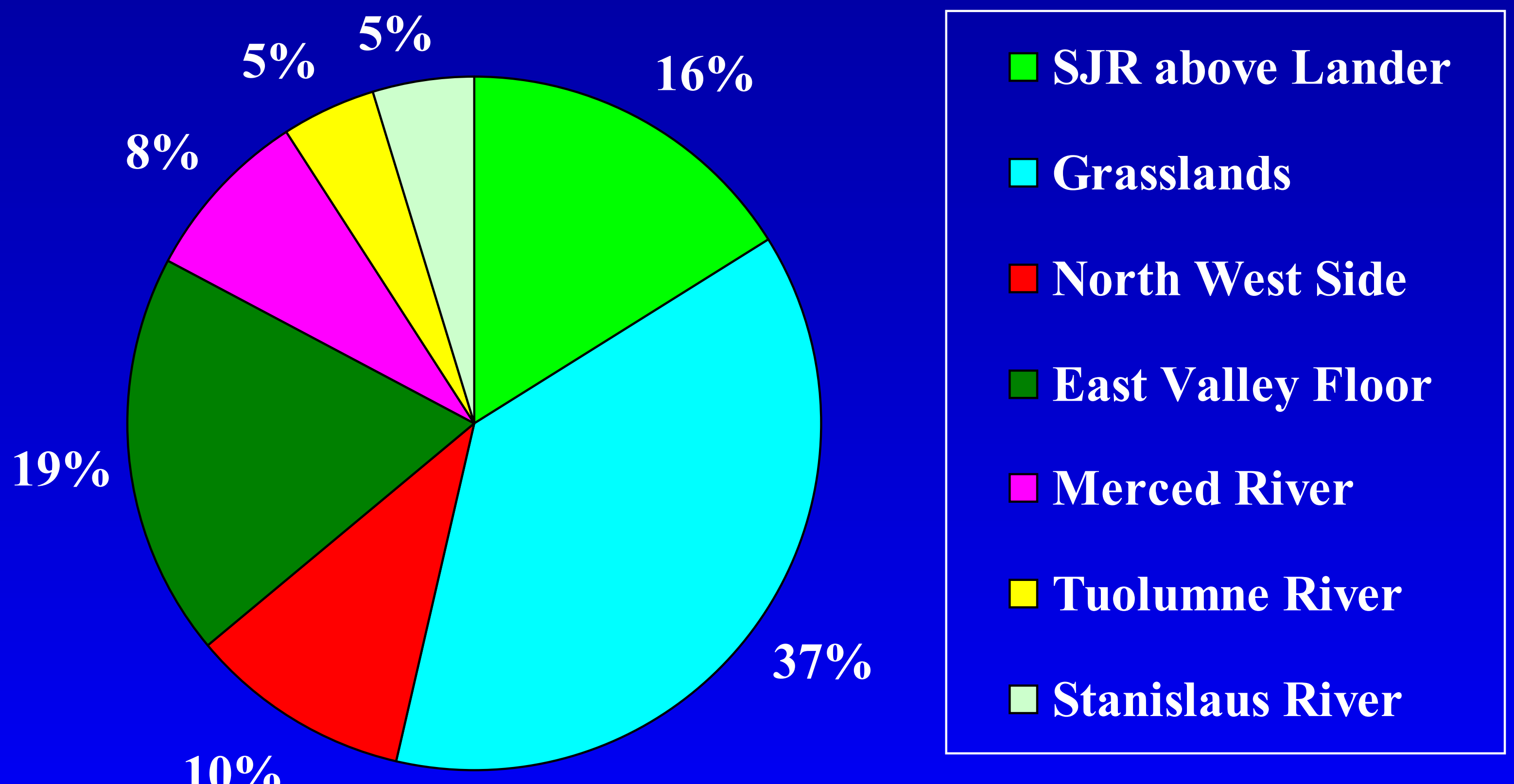
Lower San Joaquin River Basin NPS Land Uses

Sub-area	Agriculture	Managed Wetlands	Total
SJR above Salt Slough*	149	34	183
Grasslands	331	100	431
North West Side	119	--	119
East Valley Floor	216	--	216
Merced River	94	--	94
Tuolumne River	52	--	52
Stanislaus River	53	--	53

in 1000 acres

* Based on effective drainage area

Lower San Joaquin River Basin Agricultural/Wetland Land Use



Non Point Source Loading
(Per Acre by Sub-area)

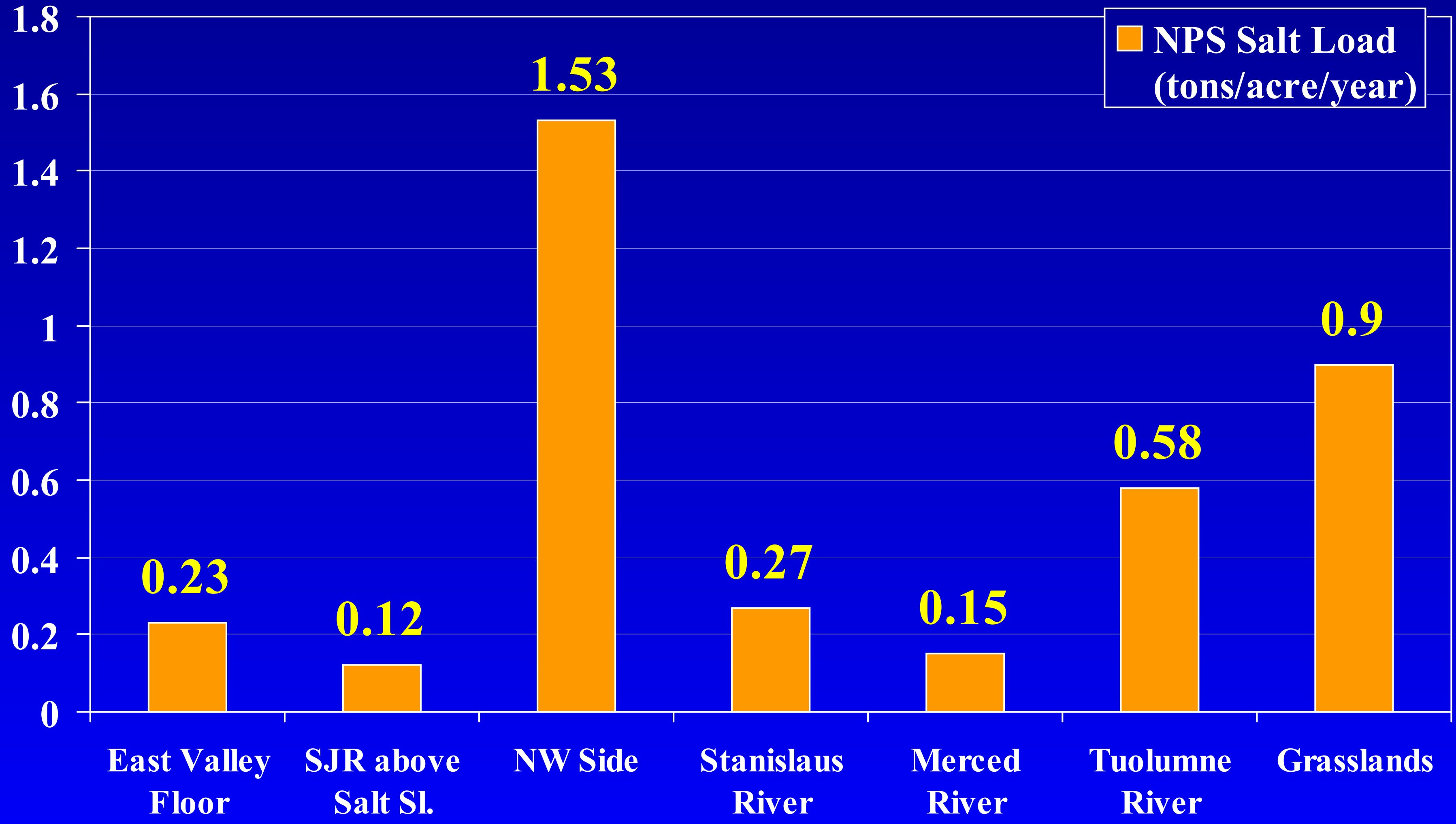
SUB-AREA	NPS (1000 acres)	NPS* Loads (1000 tons/year)	NPS Load (tons/acre/year)
SJR above Salt Slough	183	22	0.12
Grasslands	431	400	0.93
North West Side**	**119**	**182**	**1.53**
East Valley Floor	216	49	0.23
Merced River	94	14	0.15
Tuolumne River	52	30	0.58
Stanislaus River	53	14	0.27

*NPS Load = total sub area load – background load – M&I Load

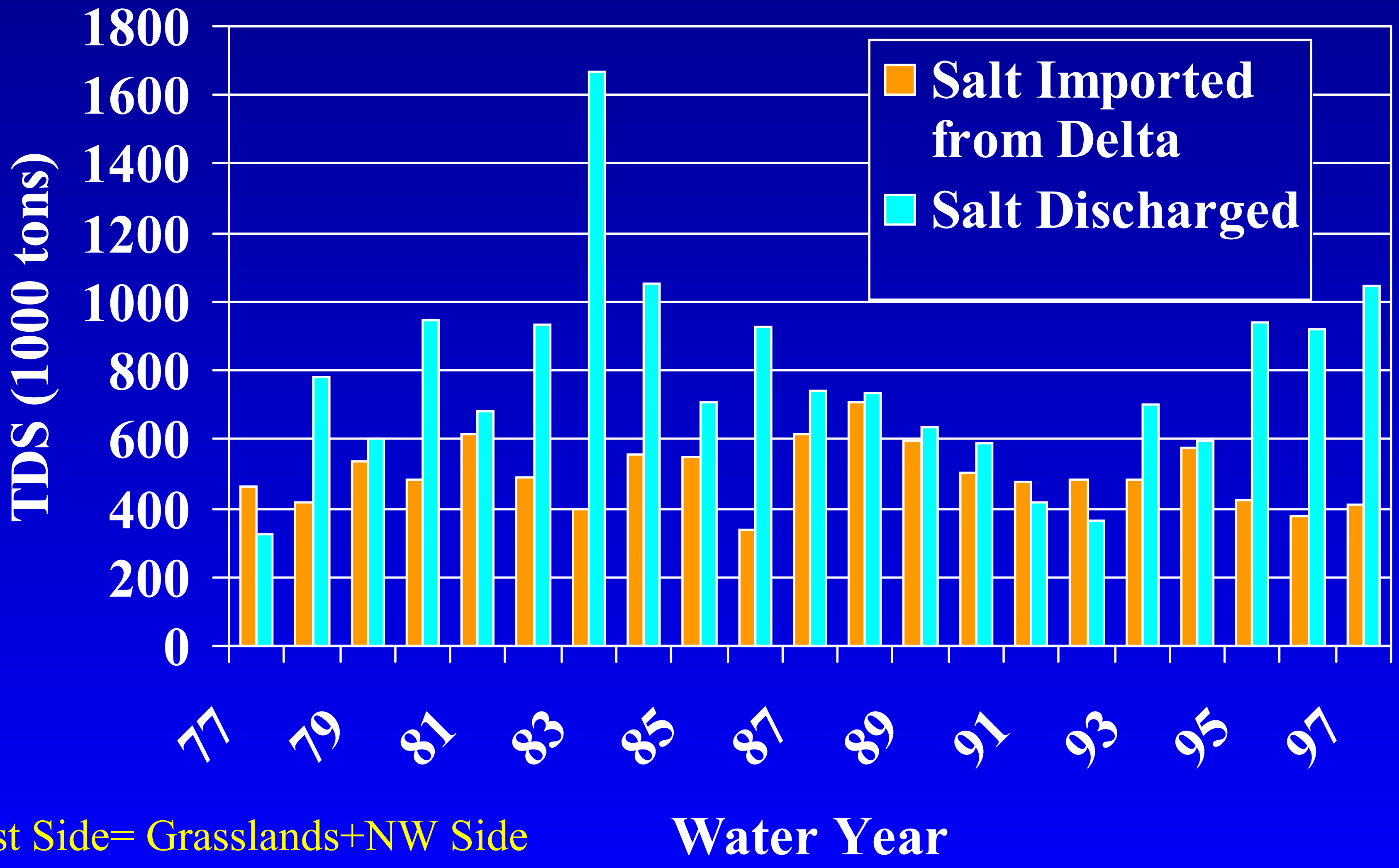
*(NPS load includes groundwater loads)

**Deep groundwater salt contribution subtracted from North West Side

Non Point Source Loading
(Per Acre by Sub-area)



TDS Imported and Discharged from the West Side* of the LSJR



*West Side= Grasslands+NW Side sub-areas

TMDL Loading Capacity

Objective:

- Determine the maximum amount of salt and boron loading that occur while meeting the water quality objectives at Vernalis

TMDL Loading Capacity

Developing Design Flows:

•Construct a long-term historic flow record superimposing the current level of water development on past flow regimes

Developing Design Flows:

A 73-year record of flows at Vernalis was compiled from DWRSim model output from CalFed study 771

CalFed study 771 description and modifications

- Best available representation of current LSJR conditions
- Vernalis Adaptive Management Plan (VAMP) flows are included
- Includes releases for water Quality that were mandated by SWRCB Decision 1641

TMDL Loading Capacity

Developing Monthly Design Flows:

- Sort flows by month and water-year type

12 months * 5 water year types =

60 month/water year type groupings

TMDL Loading Capacity

Developing design Loads:

- Identify the critical low flow for each month water-year type grouping

- TMML (Loading Capacity) = WQ objective * design Flow

Results in TMMLs for 60 month/water year type groupings

Vernalis Adaptive Management Plan (VAMP) Pulse Flow Considerations

APRIL		**MAY**	
-----------------30 days -----------------		-----------------31 days -----------------	
Beginning of April	**VAMP Pulse Period**		**End of May**
(Apr 1-14)	(Apr 15-May 15)		(May 16-May 31)
------------14 days -----------	------31 days ------		------------16 days -----------
	April in VAMP	May in VAMP	
	---16 days ---	---15 days ---	
Percent of April	Percent of April		Percent of May
47%	53%		52%
	Percent of May		
	48%		

13 time periods * 5 water year types =

65 month/water year type groupings

Determining Available Loads:

The TMML must consider ambient loading and a Margin of Safety

$$TMML = \Sigma\, LA + \Sigma WLA + BG\ loads + GW\ Loads + MOS$$

Load Allocations are dependant on background loads and groundwater loads

$$\Sigma\, LA + \Sigma WLA = TMML - (BG\ loads + GW\ Loads + MOS)$$

Consumptive Use Allowance

Allows unrestricted discharge of water below a determined "trigger value"

- Provides a base salt load allocation that considers evapoconcentration of salts
- Provides an opportunity to discharge relatively high quality water that would otherwise be limited by static load allocations

Consumptive Use Allowance

- The Trigger Value is based on a discharge water quality from a non-point source that receives an excellent quality supply water (52 mg / L TDS)
- Trigger Value assumes a 73 percent Seasonal Application Efficiency
- Based on these two factors the trigger value has initially been set at 193 mg/L TDS

Consumptive Use Allowance

$$Trigger\ Value = \frac{C_{BG}}{(1 - SAE)}$$

Where:

C_{BG} = 52 mg/L (background concentration of supply quality)

SAE = 0.73 (seasonal application efficiency)

$$Trigger\ Value = 193\ mg/L$$

Actual Consumptive use allowance (load) will depend on discharge flow volume

Determining Available Loading Capacity:

The TMML must be updated to consider the additional loading from the consumptive use allowance:

$$TMML = \Sigma LA + \Sigma WLA + BG\ loads + GW\ Loads + MOS + \mathbf{CUA}$$

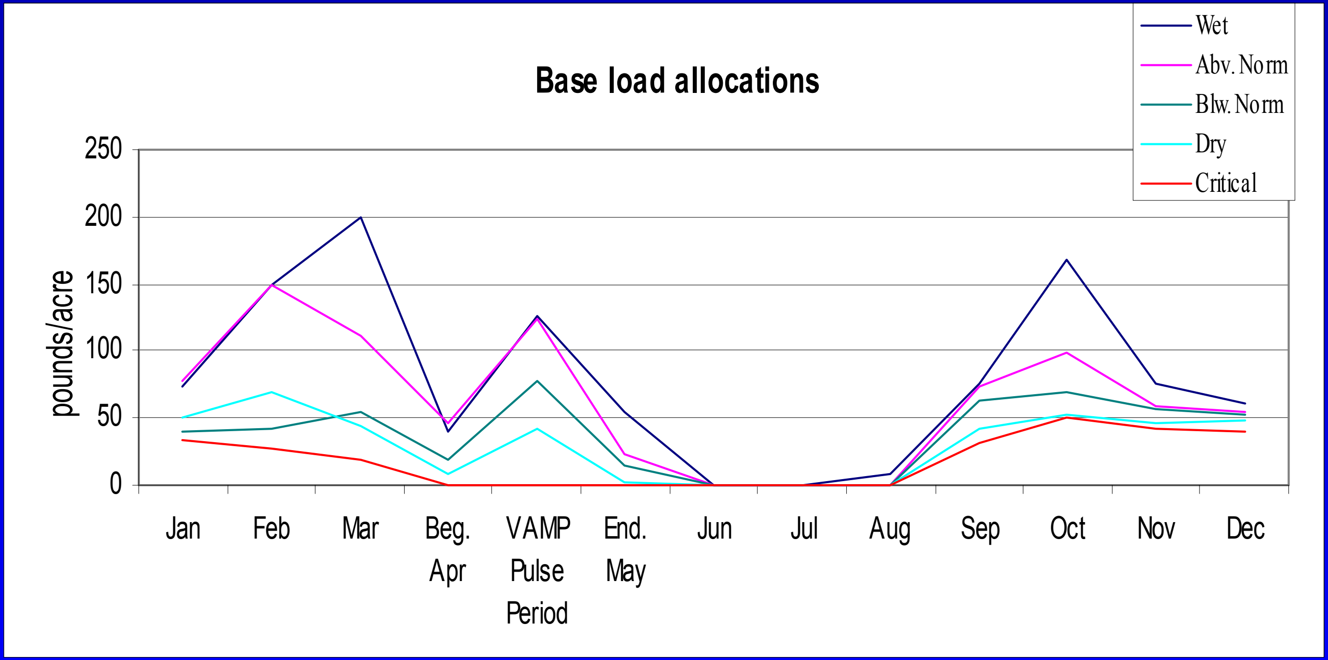
Load Allocations are dependant on background loads, groundwater loads, and **the consumptive use allowance:**

$$\Sigma LA + \Sigma WLA = TMML - (BG\ loads + GW\ Loads + MOS + \mathbf{CUA})$$

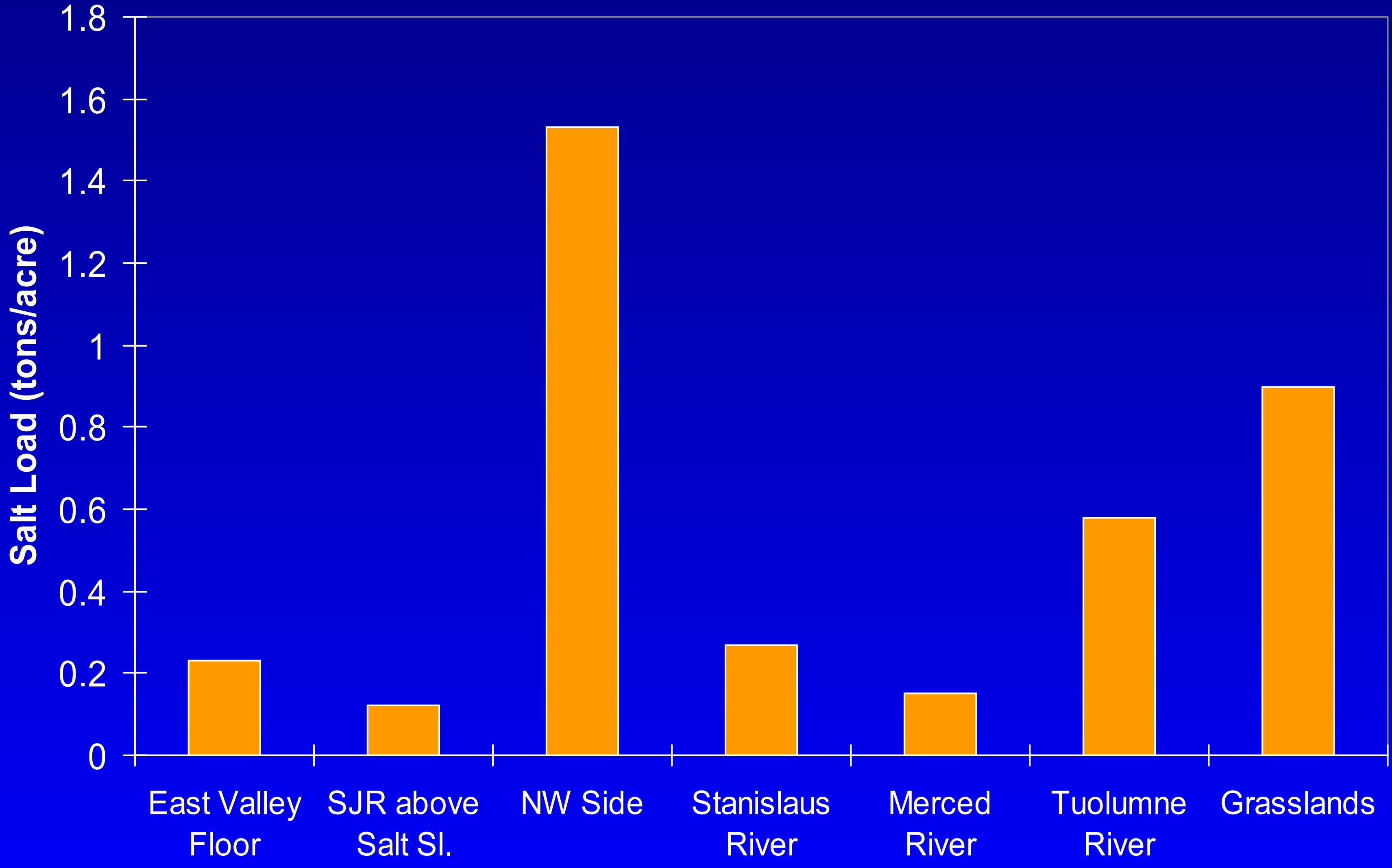
Base Salt Load Allocations (pounds of salt per acre)

Year-type	Month / Period												
	Jan	Feb	Mar	Beg. Apr*	VAMP Pulse Period **	End. May***	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wet	73	149	201	40	126	55	0	0	8	76	169	75	62
Abv. Norm	77	149	111	45	124	24	0	0	0	74	98	60	56
Blw. Norm	39	41	54	20	79	14	0	0	0	64	70	57	52
Dry	51	70	44	8	43	2	0	0	0	41	53	47	49
Critical	33	27	20	0	0	0	0	0	0	31	51	43	40

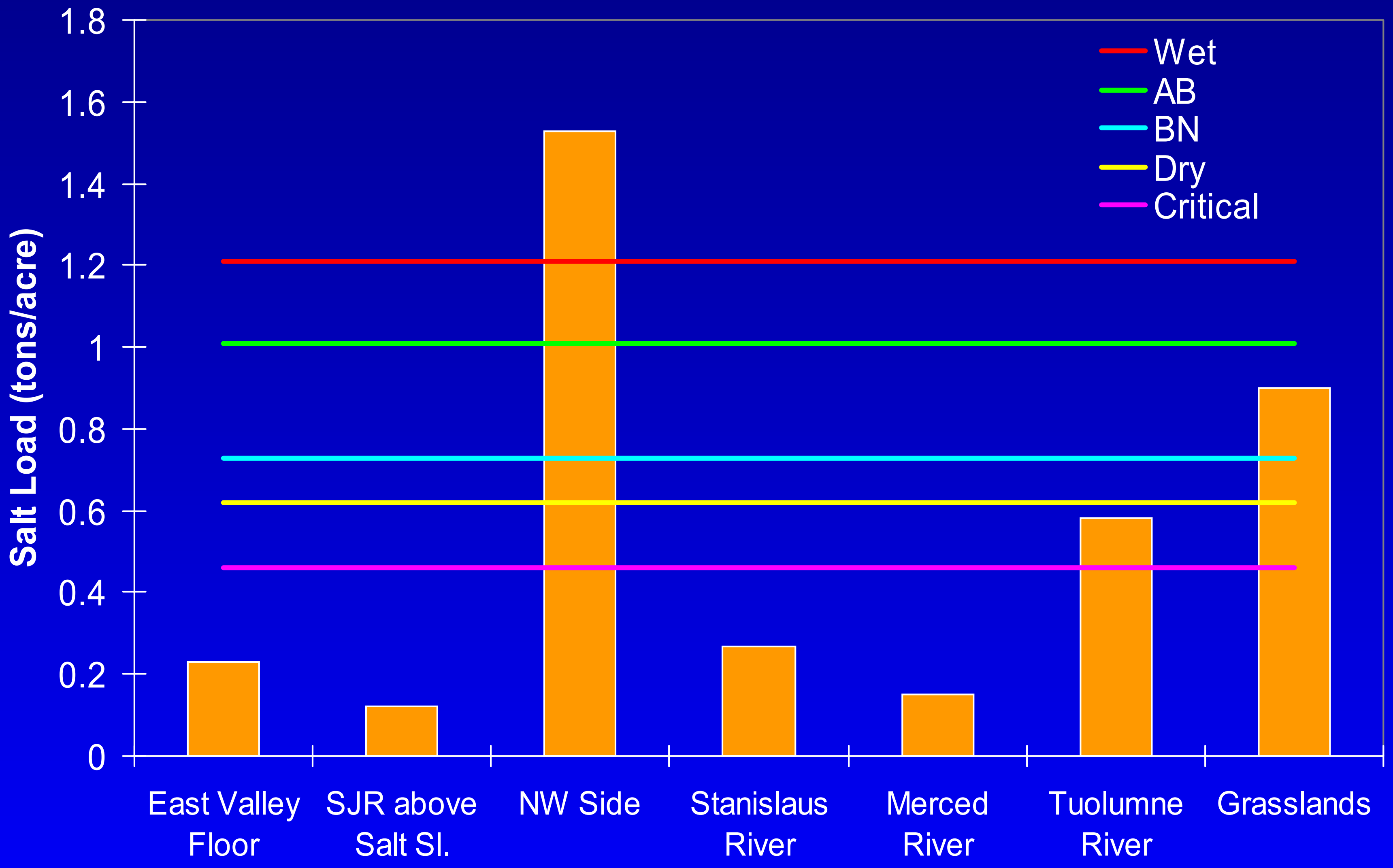
Table 4-14 in TMDL report



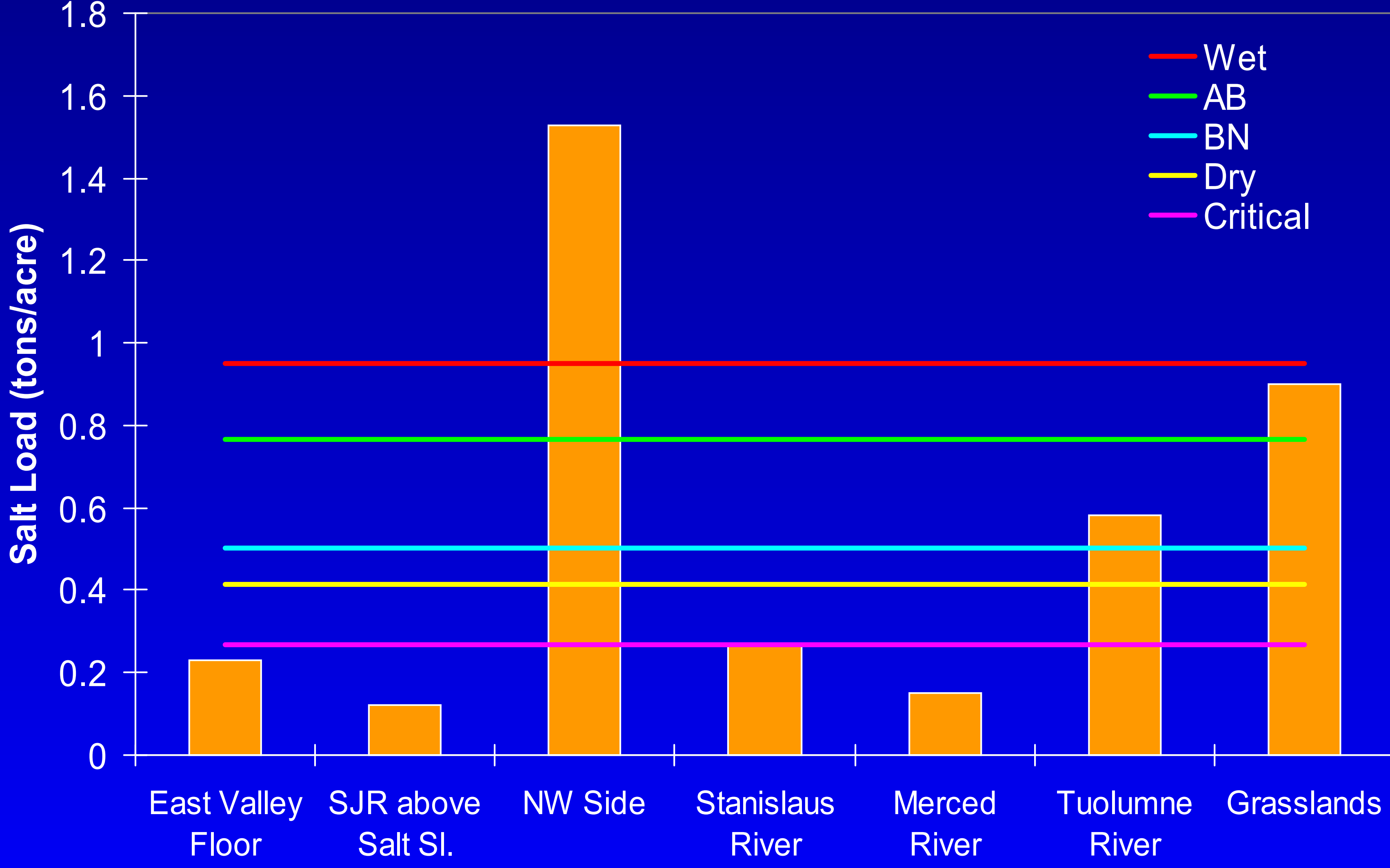
Historical Salt Loading compared to TMML



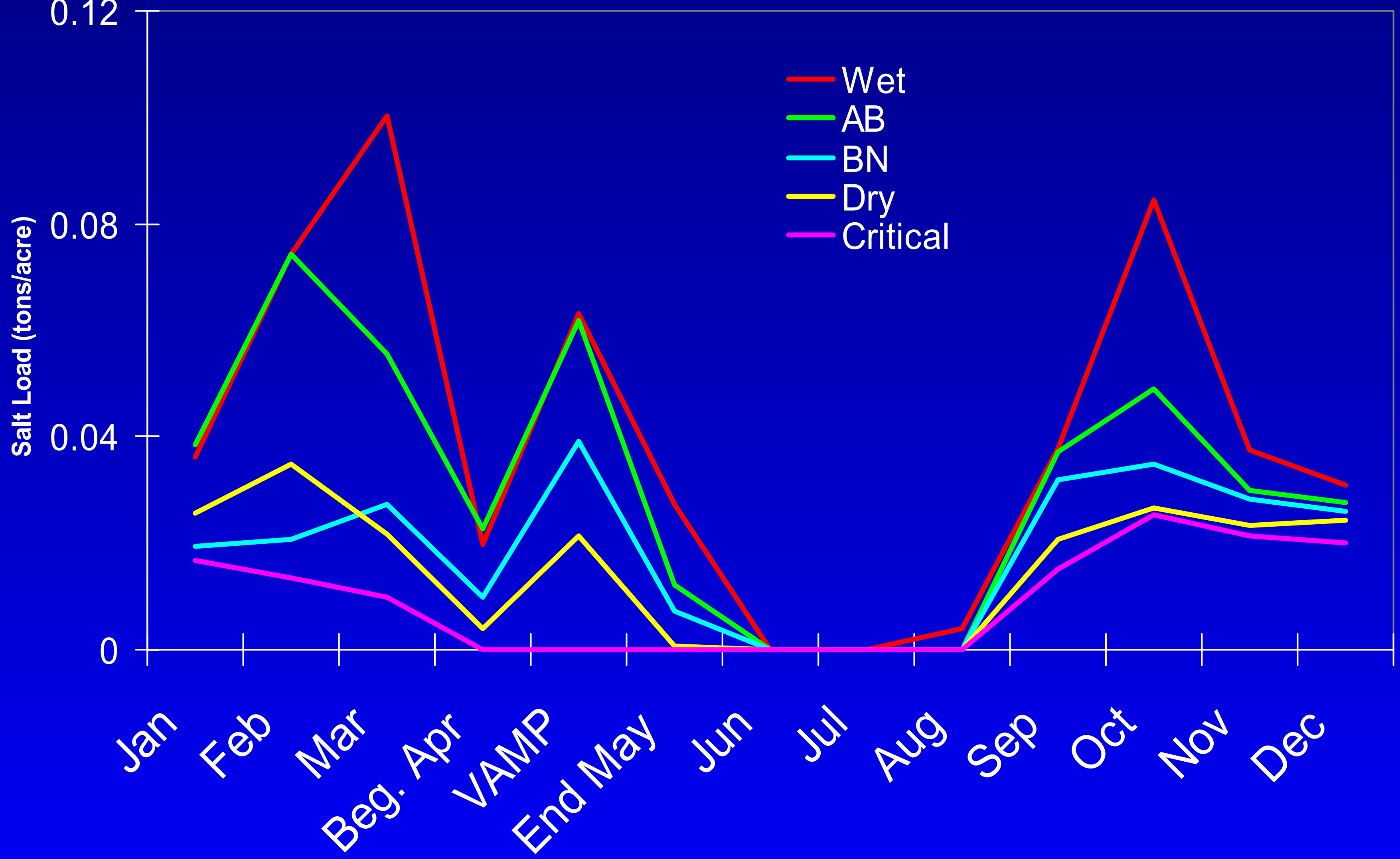
Historical Salt Loading compared to TMML



Historical Salt Loading compared to Allocatable load



LSJR Above Salt Slough Sub-area Base Load Allocations



Load Allocations and Waste Load Allocations

Waste Load Allocations for Point Sources

- Waste loads from point sources make up a relatively small percent of the total SJR loading (2%)
- Waste load allocations for the first phase of this TMDL have been set equal to historical loading (except when there is no assimilative capacity)
- Waste load allocations will be revised as part of the basin planning process

Waste Load Allocations

Table 4-7 in TMDL Report (waste load allocations in thousand tons)

All year types	Jan	Feb	Mar	Apr*	May*	Jun**	Jul	Aug***	Sep	Oct	Nov	Dec
City of Modesto	2	2	2	0.6	0.6	0	0	0	2	2	2	2
City of Turlock	1	0.7	0.7	0.7	0.7	0	0	0	0.7	0.7	0.7	0.7
Totals	3	2.7	2.7	1.3	1.3	0	0	0	2.7	2.7	2.7	2.7
* No waste load allocation available during critical year types												
**Total waste load allocation for June for wet year types is 600 tons												
*** Total waste load allocation for August for wet year types is 1,300 tons												

Load Allocations

Objective:

- The objective is to identify and use a method that will fairly allocate the available loading capacity between various sources throughout the basin

Approach

- The approach taken starts with an evenly distributed base load allocation upon which various additional load allocations are provided to account for several important considerations

Considerations

- Phased Approach
- Central Valley Project Impacts
- Need for Salt Balance

Phased Approach

- Required when a TMDL involves both point and nonpoint sources and the point source waste load allocation is based on a load allocation for which nonpoint source controls need to be implemented
- Preferable because it allows for revision of waste load allocations and load allocations in response to changing hydrologic conditions and availability of additional data and new water quality objectives

Central Valley Project Impacts

- Decreased SJR flows resulting from the diversion of SJR water at Friant Dam to agricultural areas outside of the SJR Basin
- Increased salt load imports to the basin associated with the replacement of SJR water with imports from the Sacramento and San Joaquin River Delta

Central Valley Project Impacts
TMDL Implications

- Responsibility for meeting TMDL load limits must extend beyond usual point and non-point source discharges
- Load limits and allocations must be considered for other responsible parties
- SWRCB in Water Right Decision 1641, recognized that the United States Bureau of Reclamation's actions have reduced water quality of the SJR at Vernalis

Central Valley Project Impacts

SWRCB D-1641

- The SWRCB Order in Decision 1641, adopted 29 December 1999, amended the CVP permits under which the USBR delivers water to the San Joaquin Basin to require that the USBR meet the 1995 Bay Delta Plan Salinity objectives at Vernalis
- The USBR has wide latitude in developing a program to achieve this result

Need for Salt Balance

- Salt and boron are naturally occurring elements that are mobilized whenever water is applied to soils (precipitation and applied irrigation water)
- Concentrations of salt and boron also increase as a result of evapotranspiration
- Historically, more salt has been imported to basin that has been exported

Need for Salt Balance
TMDL Implementation

- Typically, fixed TMDL load limits are established to meet water quality objectives during low flow conditions
- Recognizing need to maintain a salt balance in the basin, there is a need in salt and boron TMDL to maximize salt exports while still meeting water quality objectives

Special Considerations
Conclusions

- TMDL load limits must be established that recognizes changing conditions in basin:
- Allowance must be made for dischargers that receive impaired water
- Load limits must be established for entities that are responsible for salt imports
- Relaxation in load limits is needed to take advantage of periods with assimilative capacity greater than those afforded by low flow conditions

Challenge:

How can these special considerations be incorporated in the TMDL?

Load Allocation Methodology

- Base Load Allocation Method
- Import Water Relaxation
- CVP Load Allocation
- Real-time Relaxation

Base Load Allocation

- Use expected low flow (worst-case) conditions
- Background loads are subtracted from total loading capacity
  - Sierra Nevada supply water
  - Groundwater
- Consumptive use allowance loads subtracted from total loading capacity
- Waste load allocation assigned to point sources initially set at current loading rates
- Remaining assimilative capacity is evenly distributed to non-point sources in entire basin
- Emphasis on method, rather than fixed numbers

Base Salt Load Allocations

Base Salt Load Allocations in pounds of salt per acre* (table 4-14 in TMDL report)

Year-type	Month / Period												
	Jan	Feb	Mar	Beg. Apr*	VAMP Pulse Period **	End. May***	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wet	73	149	201	40	126	55	0	0	8	76	169	75	62
Abv. Norm	77	149	111	45	124	24	0	0	0	74	98	60	56
Blw. Norm	39	41	54	20	79	14	0	0	0	64	70	57	52
Dry	51	70	44	8	43	2	0	0	0	41	53	47	49
Critical	33	27	20	0	0	0	0	0	0	31	51	43	40
* Beginning of April runs 4/1-4/14 ** VAMP runs from 4/15-5/15 ***End of May runs from 5/16-5/31													

*A consumptive use allowance load equal to the volume of water discharged at the trigger value concentration is allowed in addition to the base load allocation

Base Salt Load Allocations

Base Salt Load Allocation in tons per year					
Sub-area	W	AN	BN	D	C
SJR above Salt Slough	94,745	74,953	44,898	37,385	22,449
Grasslands	222,683	176,165	105,527	87,867	52,763
North West Side	61,342	48,527	29,069	24,204	14,535
East Valley Floor	111,740	88,398	52,952	44,091	26,476
Merced River	48,691	38,520	23,074	19,213	11,537
Tuolumne River	26,941	21,313	12,767	10,631	6,384
Stanislaus River	27,254	21,560	12,915	10,754	6,458
Total	593,396	469,437	281,203	234,144	140,601

Import Water Relaxation
(Central Valley Project Imports)

- Sub-areas with impaired (high salt) water supply receive additional load allocation
- This "import water relaxation" is set at 50 percent of mean salt load imported to the sub-area by the Delta Mendota Canal (DMC) during low flow conditions
  - Assumption: 30 percent return flow with some added salt to account for evapo-concentration and leaching of salt from prior years
- Problem: additional load allocation results in violation of water quality objectives

DMC Import Water Relaxation

Table 4-19: DMC Import Water Relaxation Allocations For Salt (1000 tons)

NORTHWEST SIDE SUB-AREA													
	Month/Period												
Year Type	Jan	Feb	Mar	Beg. Apr	VAMP Pulse Period	End May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wet	0.0	0.2	0.0	0.7	1.4	0.7	2.0	2.6	2.6	1.0	0.9	0.6	0.0
Abv. Normal	0.0	0.0	0.0	0.8	1.9	1.0	2.3	2.3	2.6	1.2	0.8	0.3	0.0
Blw. Normal	0.0	0.0	0.0	1.0	2.6	1.5	3.4	4.2	3.3	2.5	1.9	0.8	0.0
Dry	0.0	0.0	0.0	0.1	0.3	0.2	0.3	0.5	0.5	0.2	0.2	0.0	0.0
Critically Dry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRASSLAND SUB-AREA													
	Month/Period												
Year Type	Jan	Feb	Mar	Beg. Apr	VAMP Pulse Period	End May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wet	2.1	5.9	13.9	7.8	17.3	8.8	22.6	20.8	23.2	17.2	16.0	10.4	3.7
Abv. Normal	1.2	4.8	9.4	10.4	24.7	13.6	27.6	20.3	24.5	23.9	16.6	7.5	2.6
Blw. Normal	1.4	5.7	13.8	12.5	29.5	15.9	32.6	29.2	29.8	32.9	25.3	12.8	4.5
Dry	2.2	6.7	15.9	11.1	23.4	11.2	22.9	23.1	24.0	28.0	23.7	13.0	5.3
Critically Dry	3.3	8.9	17.2	10.2	24.1	13.3	33.3	32.5	31.8	27.5	28.7	13.6	5.9

Import Water Relaxation
(San Joaquin River Diversions)

- Sub-areas that divert high salt San Joaquin River water supply receive additional load allocation
- This "SJR diversion relaxation" is set at supply water quality (with TMDL in place) minus base load (Sierra Nevada water quality)
- Problem: additional load allocation results in violation of water quality objectives

Lower SJR Diversion Allocations

Table 4-22: Northwest Side Sub-Area LSJR Diversion Allocation For Salt (1000 tons)

Year-type	Month / Period												
	Jan	Feb	Mar	Beg. Apr*	VAMP Pulse Period **	End. May***	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wet	0.0	0.6	9.1	6.2	9.3	10.9	17.1	23.4	20.4	9.3	1.3	0.0	0.0
Abv. Norm	0.0	0.8	5.0	7.3	12.2	11.1	21.8	24.9	20.3	10.5	1.4	0.0	0.0
Blw. Norm	0.0	0.6	5.5	7.0	14.3	13.4	27.3	33.1	25.9	13.6	2.4	0.0	0.0
Dry	0.0	0.7	5.3	6.4	11.1	10.7	27.5	34.0	20.3	11.2	2.3	0.0	0.0
Critical	0.0	0.8	4.5	5.1	14.8	10.6	25.2	28.5	22.3	8.5	2.4	0.0	0.0
* Beginning of April runs 4/1-4/14 ** VAMP runs from 4/15-5/15 ***End of May runs from 5/16-5/31													

CVP Import Water Relaxation

CVP Import Water Relaxation Allocation in tons per year					
Sub-area	W	AN	BN	D	C
SJR above Salt Slough					
Grasslands	169,700	187,100	245,900	210,500	250,300
North West Side	12,700	13,200	21,200	2,300	0
East Valley Floor					
Merced River					
Tuolumne River					
Stanislaus River					
Total	182,400	200,300	267,100	212,800	250,300

SJR Supply Water Relaxation

SJR Supply Water Relaxation Allocation in tons per year					
Sub-area	W	AN	BN	D	C
SJR above Salt Slough					
Grasslands					
North West Side	107,600	115,300	143,100	129,500	122,700
East Valley Floor					
Merced River					
Tuolumne River					
Stanislaus River					
Total	107,600	115,300	143,100	129,500	122,700

Base Salt Load Allocations Plus Supply Water Relaxations

Base Salt Load Allocation Plus Supply Water Relaxations in tons per year					
Sub-area	W	AN	BN	D	C
SJR above Salt Slough	94,745	74,953	44,898	37,385	22,449
Grasslands	392,383	363,265	351,427	298,367	303,063
North West Side	181,642	177,027	193,369	156,004	137,235
East Valley Floor	111,740	88,398	52,952	44,091	26,476
Merced River	48,691	38,520	23,074	19,213	11,537
Tuolumne River	26,941	21,313	12,767	10,631	6,384
Stanislaus River	27,254	21,560	12,915	10,754	6,458
Total	883,396	785,037	691,403	576,444	513,601

Import Water and SJR Diversion Relaxation

- Problem: addition of these salt load allocations will result in violation of water quality objectives
- Solution: impose load limits on supply water

CVP Load Allocation

- The USBR is responsible for salt load in Central Valley Project (CVP) water delivered to the TMDL project area that is in excess of a base load for equivalent volume of Sierra Nevada quality water
- This load responsibility offsets additional allocation provided to sub-areas that receive CVP water

Estimated CVP Actual Loads

thousand tons of salt													
Year Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
W	5	14	33	46	49	63	60	64	46	44	26	9	461
AN	3	12	23	57	67	72	57	66	60	44	20	7	488
BN	3	13	32	66	80	87	82	79	81	65	32	11	632
D	5	15	36	55	52	55	56	58	63	55	29	12	491
C	7	20	38	49	59	75	73	71	61	63	30	13	559

USBR Load Allocations

Table 4-23: USBR Load Allocations For CVP Deliveries (1000 tons)

Year-type	Month / Period												
	Jan	Feb	Mar	Beg. Apr*	VAMP Pulse Period **	End. May***	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Wet	0.7	2.3	5.8	4.5	10.9	6.2	13.6	13.7	12.6	10.0	10.0	4.5	1.6
Abv. Norm	0.8	2.1	4.6	4.1	9.9	5.6	12.4	12.3	11.8	9.3	9.3	4.2	1.6
Blw. Norm	0.7	2.0	4.4	4.2	11.0	6.6	14.8	15.1	12.9	10.6	10.5	4.6	1.6
Dry	1.0	1.9	3.7	3.0	7.3	4.1	9.0	8.6	8.6	6.9	7.1	3.1	1.3
Critical	0.7	1.9	3.7	2.7	6.5	3.7	8.1	7.6	7.5	6.2	6.2	2.8	1.1

* Beginning of April runs 4/1-4/14 ** VAMP runs from 4/15-5/15 ***End of May runs from 5/16-5/31

Estimated CVP Excess Load

thousand tons of salt													
Year Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
W	4	12	28	36	37	49	47	52	36	34	22	7	364
AN	2	10	19	48	57	60	45	54	50	35	16	5	400
BN	3	11	28	57	68	72	67	66	71	54	27	9	533
D	4	13	32	48	44	46	47	49	56	48	26	11	426
C	7	18	35	44	52	67	65	64	55	57	27	12	500

* assumes base water quality of 52 mg/L

Base Salt Load Allocations Plus Supply Water Relaxations

Base Salt Load Allocation Plus Supply Water Relaxations in tons per year					
Sub-area	W	AN	BN	C	D
SJR above Salt Slough	94,745	74,953	44,898	37,385	22,449
Grasslands	392,383	363,265	351,427	298,367	303,063
North West Side	181,642	177,027	193,369	156,004	137,235
East Valley Floor	111,740	88,398	52,952	44,091	26,476
Merced River	48,691	38,520	23,074	19,213	11,537
Tuolumne River	26,941	21,313	12,767	10,631	6,384
Stanislaus River	27,254	21,560	12,915	10,754	6,458
Total	883,396	785,037	691,403	576,444	513,601
CVP load Allocations	96,400	88,000	99,000	65,600	58,700
CVP Excess Load	364,465	400,367	533,187	425,642	500,371

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Stanislaus River	27,254	21,560	12,915	10,754	6,458
Total	883,396	785,037	691,403	576,444	513,601
Supply Water Relaxations	**290,000**	**315,600**	**410,200**	**342,300**	**373,000**
CVP load Allocations	96,400	88,000	99,000	65,600	58,700
CVP Excess Load	364,465	400,367	533,187	425,642	500,371

Real-time Load allocations

- Base loads plus import water relaxation may still be too restrictive to allow for long-term compliance with water quality objectives since salt imports will continue to exceed salt exports
- The salt and boron TMDL includes opportunities to use real-time load allocations in lieu of base load allocations
- Real-time load allocations provides for additional load allocations

Real-time Relaxation

- Real time relaxation may only be employed if physical and organizational infrastructure is put in place to effectively manage discharges in the basin
- An additional margin of safety will have to be used to assure compliance with water quality objectives

Conclusions

- Framework for a salt and boron load allocation method has been presented
- Base load allocations evenly distributed throughout basin
- TMDL considers degraded supply water quality
- Responsibility for meeting salt load limits is shared by dischargers and the USBR

- Technical TMDL report is a staff work product and does not have any regulatory effect until the Regional Board adopts components of the TMDL into the Basin Plan…

Next Steps (Regulatory)

- Complete Draft Basin Plan Amendment Staff Report:
  - Beneficial Uses
  - Water Quality Objectives
  - Program of Implementation
  - TMDL Elements (loading capacity, allocations, margin of safety)
  - Surveillance and Monitoring

Basin Plan Amendment Timelines

- A draft basin plan amendment for the salt and boron TMDL will be developed by June 2002
- Regional Board consideration of the basin plan amendment is scheduled for June of 2003

Basin Plan Amendment & Implementation Framework Considerations

- Concurrent Basin Planning and Implementation with OP Pesticide TMDL
- Concurrent Development of Dissolved Oxygen TMDL
- Development of additional salt and boron water quality objectives in SJR
- What is the future for current waiver of WDRs for irrigation return flows?

Where You Can Be Most Effective

- Provide feedback on:
  - TMDL Report
  - Draft Program of Implementation
  - Participate in Draft Basin Plan Amendment Workshops

More Information

- Salt and Boron Basin Plan Amendment:

  http://www.swrcb.ca.gov/~rwqcb5/salt_boron/documents.html

- TMDL Program:

  http://www.swrcb.ca.gov/~rwqcb5/TMDL/index.htm

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